AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A communication circuit for a network transceiver, comprising:

a first sub-circuit having a first input which receives a composite differential signal including first and second differential signal components, a second input which receives a differential replica transmission signal, and an output which provides a differential receive signal which comprises the composite differential signal minus the differential replica transmission signal;

a second sub-circuit which produces first and second single-ended replica transmission signals which together substantially comprise a replica of the first differential signal component of the composite differential signal, <u>wherein when one of the first and second single-ended replica transmission signals is asserted, the other of the first and second single-ended replica transmission signals has a value of zero,</u>

wherein the second sub-circuit is configured to generate a current signal,

wherein the first differential signal component of the composite differential signal comprises the current signal,

wherein voltage signals are derived in accordance with the current signal, and

wherein the first and second single-ended replica transmission signals comprise the voltage signals; and

a third sub-circuit, which is coupled to the first and second sub-circuits, and which produces the differential replica transmission signal from the first and second single-ended replica transmission signals, wherein the third sub-circuit includes only a single differential operational amplifier.

2. (Original) The communication circuit of claim 1, further comprising a fourth sub circuit which is coupled to the first sub-circuit and which produces a time-shift between the first differential signal component of the composite differential signal and the second differential signal component of the composite differential signal.

3. (Original) The communication circuit of claim 2, wherein the fourth sub-circuit comprises a delay circuit which introduces a delay in the first differential signal component relative to the second differential signal component.

4. (Original) The communication circuit of claim 3, wherein the third sub-circuit introduces a predetermined delay in the differential replica transmission signal relative to the fast and second single-ended replica transmission signals from which the differential replica transmission signal is produced.

5. (Original) The communication circuit of claim 4, wherein the delay introduced by the fourth sub-circuit substantially matches the predetermined delay introduced by the third sub-circuit.

6. (Original) The communication circuit of claim 1, wherein the first and second single-ended replica transmission signals are Class B signals.

7. (Original) The communication circuit of claim 6, wherein the differential replica transmission signal is produced from the first and second single-ended Class B replica transmission signals with a single operational amplifier.

8. (Original) The communication circuit of claim 1, wherein the first sub-circuit is a summer which operates to subtract the differential replica transmission signal from the composite differential signal.

9. (Currently Amended) A communication circuit, comprising:

a summer having a first input which receives a composite differential signal including a differential transmission signal component and a differential receive signal component, a second input which receives a differential replica transmission signal, and an output which provides a differential receive signal which comprises the composite differential signal minus the differential replica transmission signal;

a transmission signal replicator which provides first and second single-ended replica transmission signals which together substantially comprise a replica of the differential transmission signal component of the composite differential signal, <u>wherein when one of the first and second single-ended replica transmission signals is asserted, the other of the first and second single-ended replica transmission signals has a value of zero,</u>

wherein the transmission signal replicator is configured to generate a current signal

wherein the differential transmission signal component of the composite differential signal comprises the current signal,

wherein voltage signals are derived in accordance with the current signal, and

wherein the first and second single-ended replica transmission signals comprise the voltage signals; and

a converter which converts the first and second single-ended replica transmission signals into the differential replica transmission signal<u>, wherein the converter includes only a single differential operational amplifier</u>.

10. (Original) The communication circuit of claim 9, further comprising a delay circuit which is coupled to the summer and which produces a time-shift between the differential transmission signal component of the composite differential signal and the differential receive signal component of the composite differential signal.

11. (Original) The communication circuit of claim 10, wherein the delay circuit introduces a delay in the differential transmission signal component relative to the differential receive signal component.

12. (Original) The communication circuit of claim 11, wherein the converter introduces a predetermined delay in the differential replica transmission signal relative to

the first and second single-ended replica transmission signals from which the differential replica transmission signal is produced.

13. (Original) The communication circuit of claim 12, wherein the delay introduced by the delay circuit substantially matches the predetermined delay introduced by the converter.

14. (Original) The communication circuit of claim 9, wherein the differential transmission signal component, the differential receive signal component, and the differential replica transmission signal are Class B signals.

15. (Original) The communication circuit of claim 14, wherein the first and second single ended Class B replica transmission signals are converted to the differential replica transmission signal with a single operational amplifier.

16. (Original) The communication circuit of claim 9, wherein the summer is an active summer which operates to subtract the differential replica transmission signal from the composite differential signal.

17. (Currently Amended) A network controller, comprising:

a summing circuit that produces a differential receive signal as a difference between a composite differential signal and a differential replica transmission signal, the composite

differential signal comprising a differential transmission signal component and a differential receive signal component;

a replica circuit which produces first and second single-ended replica transmission signals which together substantially replicate the differential transmission signal component of the composite differential signal, <u>wherein when one of the first and second single-ended replica transmission signals is asserted, the other of the first and second single-ended replica transmission signals has a value of zero,</u>

wherein the replica circuit is configured to generate a current signal,

wherein the differential transmission signal component of the composite differential signal comprises the current signal,

wherein voltage signals are derived in accordance with the current signal. and

wherein the first and second single-ended replica transmission signals comprise the voltage signals; and

a converter circuit which produces the differential replica transmission signal from the first and second single-ended replica transmission signals<u>, wherein the converter circuit includes only a single differential operational amplifier</u>.

18. (Original) The network controller of claim 17, further comprising a delay circuit which is coupled to the summing circuit and which produces a time-shift between the differential transmission signal component of the composite differential signal and the differential receive signal component of the composite differential signal.

19. (Original) The network controller of claim 18, wherein the delay circuit comprises a unity-gain operational amplifier which introduces a delay in the differential transmission signal component relative to the differential receive signal component.

20. (Original) The network controller of claim 19, wherein the converter introduces a predetermined delay in the differential replica transmission signal relative to the first and second single-ended replica transmission signals from which the differential replica transmission signal is produced.

21. (Original) The network controller of claim 20, wherein the delay introduced *by* the delay circuit substantially matches the predetermined delay introduced *by* the converter.

22. (Original) The network controller of claim 17, wherein the differential transmission signal component, the differential receive signal component, and the differential replica transmission signal are Class B signals.

23. (Original) The network controller of claim 22, wherein the differential replica transmission signal is produced from the first and second single-ended Class B replica transmission signals with a single operational amplifier.

24. (Original) The network controller of claim 17, wherein the summing circuit is an active summer which operates to subtract the differential replica transmission signal from the composite differential signal.

25. (Previously Presented) A communication circuit for a network transceiver, comprising:

summing means having a first input for receiving a composite differential signal including first and second differential signal components, a second input for receiving a differential replica transmission signal, and an output for providing a differential receive signal which comprises the composite differential signal minus the differential replica transmission signal;

replicating means for producing first and second single-ended replica transmission signals which together substantially comprise a replica of the first differential signal component of the composite differential signal, <u>wherein when one of the first and second single-ended replica transmission signals is asserted, the other of the first and second single-ended replica transmission signals has a value of zero,</u>

wherein the replicating means is configured to generate a current signal,

wherein the first differential signal component of the composite differential signal comprises the current signal,

wherein voltage signals are derived in accordance with the current signal, and

wherein the first and second single-ended replica transmission signals comprise the voltage signals; and

converting means coupled to the summing means and the replicating means for producing the differential replica transmission signal from the first and second single-ended replica transmission signals, wherein the converting means includes only a single differential operational amplifier.

26. (Original) The communication circuit of claim 25, further comprising a delaying means coupled to the summing means for producing a time-shift between the fast differential signal component of the composite differential signal and the second differential signal component of the composite differential signal.

27. (Original) The communication circuit of claim 26, wherein the delaying means comprises a delay circuit which introduces a delay in the first differential signal component relative to the second differential signal component.

28. (Original) The communication circuit of claim 27, wherein the converting means introduces a predetermined delay in the differential replica transmission signal relative to the first and second single-ended replica transmission signals from which the differential replica transmission signal is produced.

29. (Original) The communication circuit of claim 28, wherein the delay introduced by the delaying means substantially matches the predetermined delay introduced by the converting means.

30. (Original) The communication circuit of claim 25, wherein the first and second single-ended replica transmission signals are Class B signals.

31. (Original) The communication circuit of claim 31, wherein the differential replica transmission signal is produced from the first and second single-ended Class B replica transmission signals with a single operational amplifier.

32. (Original) The communication circuit of claim 25, wherein the summing means is a summer which operates to substantially cancel the differential replica transmission signal from the composite differential signal.

33. (Currently Amended) A communication circuit, comprising:

a summing means having a first input for receiving a composite differential signal including a differential transmission signal component and a differential receive signal component, a second input for receiving a differential replica transmission signal, and an output for providing a differential receive signal which comprises the composite differential signal minus the differential replica transmission signal;

a replicating means for providing first and second single-ended replica transmission signals which together substantially comprise a replica of the differential transmission signal component of the composite differential signal, wherein when one of the first and second single-ended replica transmission signals is asserted, the other of the first and second single-ended replica transmission signals has a value of zero,

wherein the replicating means is configured to generate a current signal,

wherein the differential transmission signal component of the composite differential signal comprises the current signal,

wherein voltage signals are derived in accordance with the current signal, and

wherein the first and second single-ended replica transmission signals comprise the voltage signals; and

a converting means for converting the first and second single-ended replica transmission signals into the differential replica transmission signal, wherein the converting means includes only a single differential operational amplifier.

34. (Original) The communication circuit of claim 33, further comprising a delaying means coupled to the summing means for producing a time-shift between the differential transmission signal component of the composite differential signal and the differential receive signal component of the composite differential signal.

35. (Original) The communication circuit of claim 34, wherein the delaying means introduces a delay in the differential transmission signal component relative to the differential receive signal component.

36. (Original) The communication circuit of claim 35, wherein the converting means introduces a predetermined delay in the differential replica transmission signal

relative to the first and second single-ended replica transmission signals from which the differential replica transmission signal is produced.

37. (Original) The communication circuit of claim 36, wherein the delay introduced by the delaying means substantially matches the predetermined delay introduced by the converting means.

38. (Original) The communication circuit of claim 33, wherein the differential transmission signal component, the differential receive signal component, and the differential replica transmission signal are Class B signals.

39. (Original) The communication circuit of claim 38, wherein the first and second single-ended Class B replica transmission signals are converted into the differential replica transmission signal with a single operational amplifier.

40. (Original) The communication circuit of claim 33, wherein the summing means is an active resistive summer which operates to subtract the differential replica transmission signal from the composite differential signal.

41. (Currently Amended) A network controller, comprising:

summing means for producing a differential receive signal as a difference between a composite differential signal and a differential replica transmission signal, the composite

differential signal comprising a differential transmission signal component and a differential receive signal component;

replicating means for producing first and second single-ended replica transmission signals which together substantially replicate the differential transmission signal component of the composite differential signal, wherein when one of the first and second single-ended replica transmission signals is asserted, the other of the first and second single-ended replica transmission signals has a value of zero,

wherein the replicating means is configured to generate a current signal,

wherein the differential transmission signal component of the composite differential signal comprises the current signal,

wherein voltage signals are derived in accordance with the current signal, and

wherein the first and second single-ended replica transmission signals comprise the voltage signals; and

combining means for producing the differential replica transmission signal from the first and second single-ended replica transmission signals, wherein the combining means includes only a single differential operational amplifier.

42. (Original) The network controller of claim 41, further comprising delaying means coupled to the summing means for producing a time-shift between the differential transmission signal component of the composite differential signal and the differential receive signal component of the composite differential signal.

43. (Original) The network controller of claim 42, wherein the delaying means comprises a unity-gain operational amplifier which introduces a delay in the differential transmission signal component relative to the differential receive signal component.

44. (Original) The network controller of claim 43, wherein the converting means introduces a predetermined delay in the differential replica transmission signal relative to the first and second single-ended replica transmission signals from which the differential replica transmission signal is produced.

45. (Original) The network controller of claim 44, wherein the delay introduced by the delaying means substantially matches the predetermined delay introduced by the converting means.

46. (Original) The network controller of claim 41, wherein the differential transmission signal component, the differential receive signal component, and the differential replica transmission signal are Class B signals.

47. (Original) The network controller of claim 46, wherein the differential replica transmission signal is produced from the first and second single-ended Class B replica transmission signals with a single operational amplifier.

48. (Original) The network controller of claim 41, wherein the summing means comprises an active summer for subtracting the differential replica transmission signal from the composite differential signal.

49. (Currently Amended) A communication method for a network transceiver, comprising:

receiving a composite differential signal including first and second differential signal components at a first input;

receiving a differential replica transmission signal at a second input;

combining the composite differential signal and the differential replica transmission signal to thereby provide at an output a differential receive signal which comprises the composite differential signal minus the differential replica transmission signal;

producing first and second single-ended replica transmission signals which together substantially comprise a replica of the first differential signal component of the composite differential signal, <u>wherein when one of the first and second single-ended replica transmission signals is asserted, the other of the first and second single-ended replica transmission signals has a value of zero,</u>

wherein the step of producing further comprises the steps of:

generating a current signal,

wherein the first differential signal component of the composite differential signal comprises the current signal: and

deriving voltage signals in accordance with the current signal

wherein the first and second single-ended replica transmission signals comprise the voltage signals; and

developing the differential replica transmission signal from the first and second single-ended replica transmission signals, wherein the developing is performed with a single differential operational amplifier.

50. (Original) The communication method of claim 49, further comprising producing a time-shift between the first differential signal component of the composite differential signal and the second differential signal component of the composite differential signal.

51. (Original) The communication method of claim 50, wherein the time-shift is produced by a delay circuit which introduces a delay in the first differential signal component relative to the second differential signal component.

52. (Original) The communication method of claim 51, further comprising introducing a predetermined delay in the differential replica transmission signal relative to the first and second single-ended replica transmission signals from which the differential replica transmission signal is produced.

53. (Original) The communication method of claim 52, wherein the delay introduced in the first differential signal component substantially matches the predetermined delay introduced in the differential replica signal.

54. (Original) The communication method of claim 49, wherein the first and second single-ended replica transmission signals are Class B signals.

55. (Original) The communication method of claim 54, wherein the differential replica transmission signal is developed from the first and second single-ended Class B replica transmission signals with a single operational amplifier.

56. (Original) The communication method of claim 49, wherein combining the composite differential signal and the differential replica transmission signal comprises substantially canceling the differential replica transmission signal from the composite differential signal.

57. (Currently Amended) A communication method, comprising:

receiving at a first input a composite differential signal including a differential transmission signal component and a differential receive signal component;

receiving at a second input a differential replica transmission signal;

providing at an output a differential receive signal which comprises the composite differential signal minus the differential replica transmission signal;

providing first and second single-ended replica transmission signals which together substantially comprise a replica of the differential transmission signal component of the composite differential signal, wherein when one of the first and second single-ended replica transmission signals is asserted, the other of the first and second single-ended replica transmission signals has a value of zero,

wherein the second step of providing further comprises the steps of:

generating a current signal,

wherein the differential transmission signal component of the composite differential signal comprises the current signal; and

deriving voltage signals in accordance with the current signal

wherein the first and second single-ended replica transmission signals comprise the voltage signals; and

converting the first and second single-ended replica transmission signals into the differential replica transmission signal<u>, wherein the converting is performed with a single differential operational amplifier</u>.

58. (Original) The communication method of claim 57, further comprising producing a time-shift between the differential transmission signal component of the composite differential signal and the differential receive signal component of the composite differential signal.

59. (Original) The communication method of claim 58, wherein producing a time-shift between the differential transmission signal component and the differential receive signal component comprises introducing a delay in the differential transmission signal component relative to the differential receive signal component.

60. (Original) The communication method of claim 59, further comprising introducing a predetermined delay in the differential replica transmission signal relative to

the first and second single-ended replica transmission signals from which the differential replica transmission signal is produced.

61. (Original) The communication method of claim 60, wherein the delay introduced in the differential transmission signal component substantially matches the predetermined delay introduced in the differential replica transmission signal.

62. (Original) The communication method of claim 57, wherein the first and second single-ended replica transmission signals are Class B signals.

63. (Original) The communication method of claim 62, wherein the differential replica transmission signal is developed from the first and second single-ended Class B replica transmission signals with a single operational amplifier.

64. (Original) The communication method of claim 57, wherein providing the differential receive signal comprises substantially canceling the differential replica transmission signal from the composite differential signal.

65. (Currently Amended) A network controller communication method, comprising:

producing a differential receive signal as a difference between a composite differential signal and a differential replica transmission signal, the composite differential

signal comprising a differential transmission signal component and a differential receive signal component;

producing first and second single-ended replica transmission signals which together substantially replicate the differential transmission signal component of the composite differential signal, wherein when one of the first and second single-ended replica transmission signals is asserted, the other of the first and second single-ended replica transmission signals has a value of zero,

wherein the second step of producing further comprises the steps of:

generating a current signal,

wherein the differential transmission signal component of the composite differential signal comprises the current signal; and

deriving voltage signals in accordance with the current signal,

wherein the first and second single-ended replica transmission signals comprise the voltage signals; and

producing the differential replica transmission signal from the first and second single-ended replica transmission signals, wherein the producing is performed with a single differential operational amplifier.

66. (Original) The communication method of claim 65, further comprising producing a time shift between the differential transmission signal component of the composite differential signal and the differential receive signal component of the composite differential signal.

67. (Original) The communication method of claim 66, wherein the time-shift is produced by a unity-gain operational amplifier which introduces a delay in the differential transmission signal component relative to the differential receive signal component.

68. (Original) The communication method of claim 67, further comprising introducing a predetermined delay in the differential replica transmission signal relative to the first and second single-ended replica transmission signals from which the differential replica transmission signal is produced.

69. (Original) The communication method of claim 68, wherein the delay introduced in the differential transmission signal component substantially matches the predetermined delay introduced in the differential replica transmission signal.

70. (Original) The communication method of claim 65, wherein the fast and second single ended replica transmission signals are Class B signals.

71. (Original) The communication method of claim 70, wherein the differential replica transmission signal is developed from the first and second single-ended Class B replica transmission signals with a single operational amplifier.

72. (Original) The communication method of claim 65, wherein the summing means comprises an active summer for subtracting the differential replica transmission signal from the composite differential signal.